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**Beneficial Use Reconnaissance Program**

**2008 Annual Work Plan**

**For Streams**

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**Idaho Department of Environmental Quality**



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## Abstract

In 1993, the Idaho Division (now Department) of Environmental Quality (DEQ) embarked on a pilot monitoring program, the Beneficial Use Reconnaissance Project (now Beneficial Use Reconnaissance Program [BURP]) aimed at integrating biological monitoring with physical habitat assessment to characterize stream integrity and the quality of Idaho's waters. This program has been implemented statewide since 1994. DEQ's past monitoring and assessment practices and the U.S. Environmental Protection Agency's (EPA's) rapid bioassessment protocols (RBPs) provided the foundation for BURP monitoring protocols. The purpose of BURP is to assist in determining the existing uses and beneficial use support status of Idaho's water bodies. The purposes of annual BURP work plans are to provide background information about the program and to list program objectives for a specific year. A companion to this work plan, the *Beneficial Use Reconnaissance Program Field Manual for Streams*, describes the methods used in BURP. For the 2008 field season, centralized crew training will be conducted out of the DEQ Boise Regional Office area. Safety will be emphasized during the training. The objectives for BURP in 2008 are to 1) monitor long-term reference trend sites, 2) fill in data gaps with an emphasis on unassessed assessment units, and 3) continue probabilistic site selection design.

The Boise, Coeur d'Alene, Idaho Falls, Lewiston, Pocatello, and Twin Falls DEQ Regional Offices will each have a wadeable stream crew for the 2008 season. In addition, the State Office will field a medium- to large-river monitoring crew as well as a wadeable stream crew that will participate in EPA's National Rivers and Streams Assessment.

The field season will begin July 1 and end in September 2008. Current forecasts are for streamflows near or above average throughout most of the state. Each crew will sample ambient conditions of approximately 50-75 stream sties. Current estimates are that DEQ will monitor approximately 35 river sites and 450 wadeable stream sites collectively, with 17 of the wadeable stream sites used for the National Rivers and Streams Assessment.

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## Introduction

### Regulatory Framework (Clean Water Act)

The history of the current regulatory framework for clean water programs in the United States began with the Water Pollution Control Act of 1948 (Public Law 80-845) (Water Environment Federation 1987). This was the first comprehensive statement of federal interest in clean water programs. In 1972, the U.S. Congress passed Public Law 92-500, the Federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA) (Water Environment Federation 1987). The goal of the act was to restore and maintain the chemical, physical, and biological integrity of the nation's waters (Water Environment Federation 1987). An amendment passed in 1977 stated one goal as the protection and management of waters to ensure swimmable and fishable conditions. This goal, along with the 1973 goal to restore and maintain chemical, physical and biological integrity, relates water quality to more than just chemical characteristics. The CWA and the programs it has generated have changed over the years as experience and perceptions of water quality have changed. The CWA has been amended 15 times, most significantly in 1977, 1981, and 1987.

The federal government, through the U.S. Environmental Protection Agency (EPA), assumed the dominant role in defining and directing water pollution control programs across the nation. DEQ implements the CWA in Idaho while the EPA provides oversight of Idaho's fulfillment of CWA requirements and responsibilities. DEQ is charged with providing consistent water body monitoring and assessment methods (Clean Water Act, CRF, 39:3601). Standardized procedures and DEQ monitoring protocols provide this consistency (Grafe et al. 2002). The assessment methods used in the State (Grafe et al. 2002) determine if a water body is supporting or not supporting beneficial uses (see Table 1) such as aquatic life. The *Idaho Water Quality Standards* are the rules concerning beneficial uses and their associated criteria (IDAPA 58.01.02). The Idaho water quality standards consist of three parts: 1) beneficial uses, 2) numeric and narrative criteria, and 3) anti-degradation. Beneficial uses are described in more detail below.

**Table 1. The beneficial use categories of Idaho water as specified in the Idaho water quality standards (IDAPA 58.01.02)**

Beneficial Use Category	Beneficial Uses
Aquatic Life Support	Cold Water Aquatic Life, Salmonid Spawning, Seasonal Cold Water Aquatic Life, Warm Water Aquatic Life, Modified
Contact Recreation	Primary (swimming), Secondary (boating)
Water Supply	Domestic, Agricultural, Industrial
Other	Wildlife Habitat, Aesthetics, Special Resource Waters

## History of the Beneficial Use Reconnaissance Program

In 1993, DEQ embarked on a pilot project known as the Beneficial Use Reconnaissance Project (now known as the Beneficial Use Reconnaissance Program [BURP]) aimed at integrating biological monitoring with physical habitat assessment to characterize stream integrity and the quality of the water (McIntyre 1993). This project was also developed to meet the CWA requirements of monitoring and assessing biology and of developing biocriteria. This pilot relied heavily on protocols for monitoring physical habitat and macroinvertebrates developed by Idaho State University and DEQ in the early 1990s. It closely followed the *Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthos Macroinvertebrates and Fish* developed by EPA (Plafkin et al. 1989). Idaho's surface water quality monitoring is based on watersheds, which are grouped into hydrologic units and identified by hydrologic unit codes (HUCs) (Figure 1).

This project was an attempt to use the best science and understanding available to characterize water quality based on biological communities and their attributes. Because of the success of the 1993 pilot, DEQ decided to expand the project to statewide use in 1994 (McIntyre 1994; Steed and Clark 1995). BURP has remained in use statewide since 1994 (Idaho Division of Environmental Quality 1995, Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1998, 1999). BURP is the ambient monitoring strategy for the State of Idaho at this time.

BURP monitoring was greatly reduced for the 2000 field season in order to revise the monitoring and assessment documents and to begin assessment of collected data. A final assessment document was created for the purpose of assessing these data (Grafe et al. 2002). Also in 2000, the *Beneficial Use Reconnaissance Project* was renamed the *Beneficial Use Reconnaissance Program* to emphasize its importance as a permanent DEQ monitoring program. Through the end of the 2007 BURP season, over 7,000 stream sites have been sampled in Idaho, making DEQ a national leader in bioassessment.

## Overview of Rapid Bioassessment

Barbour et al. (1999) define biological assessment as “an evaluation of the condition of a waterbody using biological surveys and other direct measurements of the resident biota in surface waters.” The concept of “rapid bioassessment” resulted from a report by EPA, which suggested a restructuring of monitoring programs at that time (U.S. Environmental Protection Agency 1987). EPA's answer to this suggestion resulted in the first Rapid Bioassessment Protocols (RBPs) being published (Plafkin et al. 1989). RBPs were found to be faster, and thus cheaper, than previous monitoring techniques.

The RBPs have been used nationwide by a wide variety of federal agencies, several states, and other monitoring entities, and have improved over the years (Barbour et al. 1999). Idaho's BURP uses many of the RBP methods and makes modifications to improve consistency and reduce variability, to better fit Idaho's landscape, and to meet DEQ's objective (Beneficial Use Reconnaissance Project Technical Advisory Committee 1999). A more detailed review of RBPs can be found in Idaho's 1998 303(d)-list report (Idaho Division of Environmental Quality 1998).



## **Purposes of the BURP Annual Work Plans**

The purposes of BURP's annual work plans are to provide background information about BURP and list yearly objectives. Annual work plans also help improve consistency within the program and serve as a substantial portion of BURP's quality assurance/quality control (QA/QC) program. The annual work plan gives the monitoring objectives for the year and the priorities for watersheds and streams to be sampled. Any pilot projects planned for the year are described as well as any other special considerations that may be unique to a given year. Clark (2001) provided the first work plan for BURP that did not contain the actual field methods used; now the methods can be found in the companion to the work plan. For this work plan, methods can be found in the *Beneficial Use Reconnaissance Program Field Manual for Wadeable (Small) Streams* (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2007) which describes in detail the field methods used.

## **Beneficial Uses of Water in Idaho**

The beneficial uses of water in Idaho are defined in the *Water Quality Standards* as:

Any of the various uses which may be made of the water of Idaho, including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use is dependent upon actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not a beneficial use.

These beneficial uses are listed in Table 1. Since 1993, the purpose of BURP has been to establish existing uses and help determine the status of these beneficial uses (McIntyre 1993; Idaho Division of Environmental Quality 1995; Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1999).

## **Beneficial Use Reconnaissance Program (BURP) Support Status**

To achieve its purpose, BURP collects and measures key water quality indicators that aid DEQ in determining the beneficial use support status of Idaho's water bodies. This determination will tell if a water body is in compliance with water quality standards and criteria and if the water is meeting reference conditions. Reference conditions are those that fully support applicable beneficial uses with little effect from human activity and represent the highest level of support attainable. Reference conditions vary by bioregion. BURP provides the data used in the *Water Body Assessment Guidance* (Grafe et al. 2002). For more details on assessment technique and data handling policies, as well as other policies, see Grafe et al. (2002).

Currently, DEQ recognizes three categories of beneficial use support status: fully supporting, not fully supporting, and not assessed. “Fully supporting” means that the water body is in compliance with water quality standards and criteria, and meeting the reference conditions for all designated and existing beneficial uses as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002). Not fully supporting refers to a water body that is not in compliance with water quality standards or criteria, or not meeting reference conditions for each beneficial use as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002). The “not assessed” category describes water bodies that have been monitored to some extent, but are missing critical information needed to complete an assessment. Not assessed can also mean that DEQ has not visited the water body and has no information on it.

## **Annual Work Plan, 2008 Field Season**

### **Objectives:**

The monitoring objectives for the 2008 field season are:

1. Monitor long-term Wadeable Stream Reference Trend sites;
2. Fill in data gaps with an emphasis on unassessed assessment units;
3. Continue probabilistic design strategy for Wadeable Streams;
4. Complete the Idaho Major Rivers Survey; and
5. Complete National Rivers and Streams Survey monitoring for Wadeable sites in Idaho.

DEQ will continue to monitor long-term reference trend sites. Several authors (Bahls et al. 1992; Grafe et al. 2002; Harrelson et al. 1994; King 1993; McGuire 1992, 1995) have pointed out the need for long-term monitoring data of least-impacted (reference) sites. The purpose of long-term monitoring efforts is to help determine the range of natural variation within a water body (Barbour et al. 1999). For several years, BURP monitoring has placed an emphasis on least-impacted (reference) conditions (McIntyre 1994; Idaho Division of Environmental Quality 1995; Beneficial Use Reconnaissance Project Technical Advisory Committee 1996, 1997, 1998, 1999).

The DEQ monitoring strategy will tie into the EPA development of a Consolidated Assessment and Listing Methodology (CALM), which has the purpose of improving State monitoring and assessment programs (U.S. Environmental Protection Agency 2001). Six major parts make up CALM: 1) making decisions on attainment/non-attainment of State water quality standards (covering listing/de-listing decisions); 2) designing comprehensive State monitoring networks that support attainment decisions; 3) reporting and presenting data; 4) upgrading elements of State monitoring programs; 5) identifying causes and sources of impairment; and 6) addressing issues such as pathogens, nutrients, sedimentation, and fish advisories. The overall goal of the CALM is to both strengthen and streamline the water quality monitoring, assessment, and listing process for purposes of both sections 305(b) and 303(d) of the Clean Water Act. CALM will provide guidance on the monitoring data and assessment methods needed to support

decision making, and on communicating water quality conditions to the public. The benefits of the CALM are, therefore, increased monitoring on all waters, improved decision making on water quality standards attainment and listing of impaired waters, and clearer communication to the public on water quality issues in each State and across the nation (U.S. Environmental Protection Agency 2001). From 1993 through 2003, DEQ attempted to representatively survey all streams within Idaho (the “census approach”) and surveyed more than 5,000 sites. These sites represent about 75% of the 2,500 water body identification (WBID) units and 4,700 assessment units (AUs). A WBID usually represents a small watershed and is used in Idaho’s water quality standards to geo-locate water in the state. The scale of a WBID is generally comparable to a 6<sup>th</sup>-field (12-digit hydrologic unit code [HUC]) watershed, although some may be larger or smaller (see Figure 2 for an illustration of the scale differences among HUCs, WBIDs and AUs). The AU is a mechanism for grouping waters within a WBID into a meaningful unit for assessment purposes. Presently, most AUs are grouped based on stream order and land use; however, DEQ staff may further delineate AUs based on additional information. Therefore, the number of WBIDs in Idaho is presently a fixed total, whereas the total number of AUs will continue to change based on assessment decisions. However, the census approach has proven to be too cost prohibitive to answer the questions posed to the States by the EPA, specifically, “what is the status of the State’s waters.” In 2006, DEQ shifted the monitoring strategy from census surveying to a probability-based random survey to answer this specific question posed by the EPA by using properly designed algorithms to develop a reliable estimate of the status of the State’s waters.

DEQ uses stream order to define AUs within WBIDs to characterize comparable water body segments and ensure representative monitoring sites. In essence, the use of AUs allows DEQ to compare streams and interpret site data. Presently, DEQ attempts to representatively monitor all AUs. Any one BURP reach should not represent more than one AU.

The U.S. Environmental Protection Agency has published a guide listing key elements of a State water monitoring and assessment program which serves as a tool to help EPA and the States determine whether a monitoring program meets the prerequisites of CWA Section 106(e)(1).0. They recommend that State programs include the following 10 elements: program strategy, objectives, sampling design, core and supplemental water quality indicators, quality assurance, data management, data analysis and assessment, reporting, evaluation of the program, and general support with infrastructure planning. EPA believes that States’ monitoring programs can be upgraded to include all of these elements within the next 10 years. The Clean Water Act (CWA) 1067(e)(1) and 40 CFR Part 35.168(a) require that EPA award Section 106 funds to a State only if the State has provided for, or is carrying out as part of its program, the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor and to compile and analyze data on the quality of navigable waters in the States, and provision for annually updating the data and including it in the Section 305(b) report.

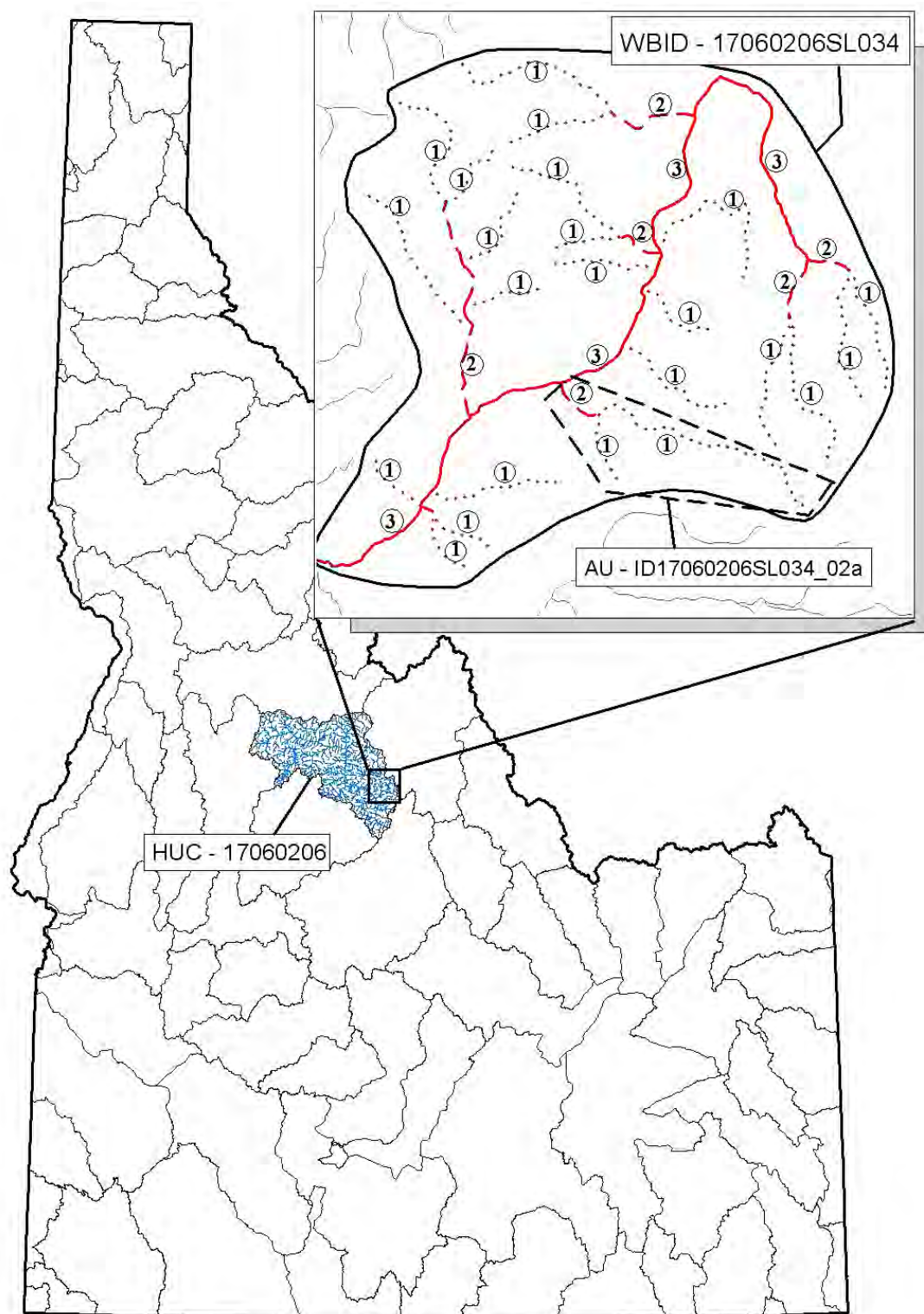


Figure 2. Scale differences among HUCs, WBIDs, and AUs.

Because these elements have not been clearly defined in the past, there is significant variability among current State programs show between States. EPA expects that State water monitoring programs will evolve over the next 10 years so that ultimately all States will have a common foundation of water quality monitoring programs that supports State decision needs. EPA expects that most States will employ an iterative process to fully implement a monitoring program that reflects the elements described in this document, and will work with States to identify annual monitoring milestones. States should develop, over time, a monitoring program addressing the 10 elements listed above.

**Idaho Major Rivers Survey.** For 2008, the DEQ BURP program will be monitoring large rivers throughout the state. Data generated will be combined with large river data collected in 2006 in order to complete a statewide assessment of Idaho's large rivers. The Idaho Major Rivers Survey follows protocols developed by DEQ for monitoring in non-wadeable rivers (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2008).

**National Rivers and Streams Assessment (NRSA).** DEQ will continue its cooperation with EPA's Environmental Monitoring and Assessment Program in 2008 by taking part in the National Rivers and Streams Assessment. This is a two year project designed to assess the integrity of flowing waters across the United States. Sites for the NRSA are divided between wadeable streams and non-wadeable rivers. DEQ will focus efforts on wadeable streams for the 2008 field season, with plans to complete the non-wadeable river portion in 2009. The NRSA is a national assessment, with standardized protocols developed by EPA (U.S. Environmental Protection Agency, 2007)

### **Special Considerations for the 2008 Field Season**

The Natural Resources Conservation Service (2001, 2008 supplement) provided the following streamflow projections for Idaho for 2008 (as of April 1, 2008):

Warm temperatures in early March allowed the snow in the lowest elevations to begin melting across the state producing slight increases in streamflow, but no major runoff events have occurred yet this year; not even in northern Idaho where a warm Chinook usually occurs that removes some of the low snow. Temperatures across the Pacific Northwest and Northern Rockies in Idaho and Wyoming in the second half of March were 6-10 degrees F below normal. Temperatures the last week of March across the Pacific Northwest were the coldest since 1975. The return to below normal temperatures in the second half of March halted the melting and allowed precipitation to continue falling as snow across the state, thus adding to the already high snow levels in northern Idaho. Mid-elevation snow sites along Idaho's western border are well above average, ripe and ready to melt with the onset of warmer temperatures in April. Higher elevation snowpacks are several weeks to a month away from melting. Snowpack percentages vary across the state with the highest percentages in the lower drainages of Rathdrum

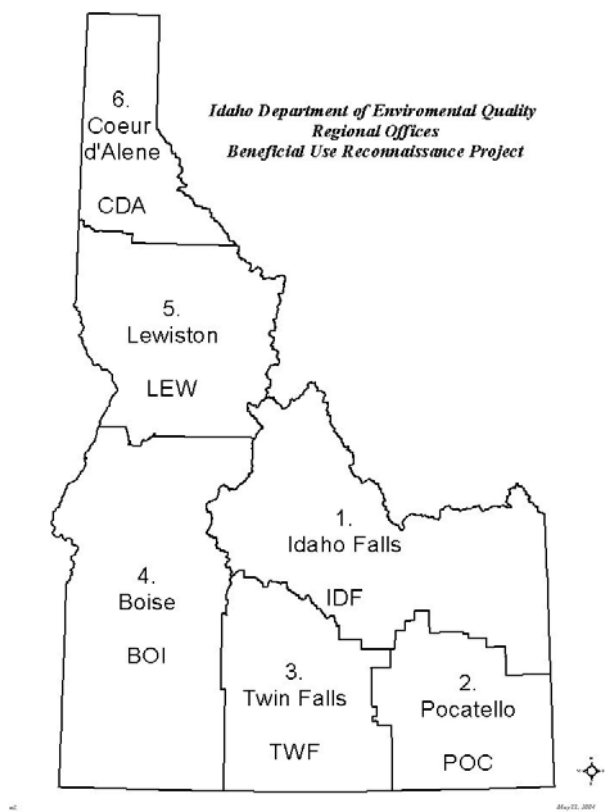
and Palouse basins at 165% of average. Snowpacks in the major basins are: 130-145% of average in Coeur d'Alene, Spokane, Lochsa, Camas and Owyhee basins. Basins that are 120-125% are: St. Joe, North Fork Clearwater, Selway, Little Salmon, North Fork Payette, Mores, Pacific (WY) and Willow basins. The lowest snowpacks are 90-99% of average in the Middle and North Fork Boise, Big Wood above Hailey, Little Wood, Big Lost, Hoback (WY), and most of Bear River tributaries.

The highest streamflow forecasts are in the Panhandle, Clearwater and Weiser basins at 115-125% of average. The rest of the region is forecast at 90-115% of average with the lowest forecasts in the Bear River at 58% of average. Reservoir storage varies depending on use, and carryover storage ranging from 70-110% of average for the ones in better shape to 30-60% of average for Magic, Little Wood, Blackfoot, Salmon Falls, Owyhee and Bear Lake. This year's runoff should fill most reservoirs or provide adequate water supplies.

### **River and Stream Sample Sites**

The Idaho Falls, Pocatello, Twin Falls, Boise, Lewiston, and Coeur d'Alene DEQ Regional Offices will each have a sampling crew for the 2008 field season, as will the State Office. Contact information for each of the DEQ Regional Office BURP Coordinators and the State Office Program Manager is given in Figure 3.

Statewide, approximately 455 sites will be monitored. The wadeable stream BURP sites will include 26 reference sites sampled. These core reference stations are sampled on a regular basis to help establish a range of conditions and trends. Crews will typically sample lowland and rangeland areas earlier in the season and work upwards (increase elevation) toward forested streams to avoid problems encountered with early season runoff (snowmelt). The plan is to sample each stream at what are summer low flow conditions. A short narrative of what each DEQ Regional Office plans for the 2008 field season is given below. Figure 3 shows the approximate area of field operations for each office and coordinator. The field season will begin July 1 and end in September.



**Figure 3. Beneficial Use Reconnaissance Program Contacts for 2008 and Areas of Responsibility**

State Office Program, 1410 N. Hilton, Boise, ID 83706

Jason Pappani

Surface Water

Water Quality Assessment

Program Manager

(208) 373-0173

Jason.pappani@deq.idaho.gov

- BURP Program Contact
- BURP State Work Plan
- BURP Field Methods

### **Regional Office Coordinators:**

- |   |  |  |
|---|--|--|
| <p>(1) Steve Robinson<br/>Idaho Falls Regional Office<br/>900 N. Skyline, Suite B<br/>Idaho Falls, ID 83402<br/>(208) 528-2650<br/>Fax: 528-2695<br/>Steve.robinson@deq.idaho.gov</p> | <p>(2) Christine Waite<br/>Pocatello Regional Office<br/>444 Hospital Way<br/>Pocatello, ID 83201<br/>(208) 236-6160<br/>Fax: 236-6168<br/>Christine.waite@deq.idaho.gov</p> | <p>(3) Sean Woodhead<br/>Twin Falls Regional Office<br/>601 Pole Line Rd., Ste 2<br/>Twin Falls, ID 83301<br/>(208) 736-2190<br/>Fax: 736-2194<br/>Sean.woodhead@deq.idaho.gov</p> |
| <p>(4) Hawk Stone<br/>Boise Regional Office<br/>1445 N. Orchard<br/>Boise, ID 83706<br/>(208) 373-0550<br/>Fax: 373-0287<br/>Hawk.stone@deq.idaho.gov</p>                             | <p>(5) Daniel Stewart<br/>Lewiston Regional Office<br/>300 W. Main St.<br/>Grangeville, ID 83530<br/>(208) 983-0808<br/>Fax: 983-2873<br/>Daniel.stewart@deq.idaho.gov</p>   | <p>(6) Glen Pettit<br/>Coeur d'Alene Regional Office<br/>2110 Ironwood Pkwy<br/>Coeur d'Alene, ID 83814<br/>(208) 769-1422<br/>Fax: 769-1404<br/>Glen.pettit@deq.idaho.gov</p>     |

**Idaho Falls Regional Office (IFRO)** – The IFRO BURP crew plans to focus on monitoring of the Upper Salmon (HUC 17060201) in an effort to complete monitoring of all unassessed streams in the watershed. The IFRO crew will continue to monitor random sites and reference trend sites in the region.

Bacteria will be collected on all sites deemed to have a possible impact. All sites will be electrofished, to the extent permitted by the Idaho Department of Fish and Game.

**Pocatello Regional Office (PRO)** – For the 2008 field season, the PRO BURP crew will begin to review streams in the Portneuf (HUC 17040208) and American Falls (HUC 17040206) watersheds in response to the 5-year TMDL review requirement. The PRO will also focus efforts on monitoring unassessed AUs and any other streams that haven't been monitored in the past 5 years. This will include monitoring several streams in the Central Bear (HUC 16010102), Bear Lake (HUC 16010201), Middle Bear (HUC 16010202), Lower Bear (HUC 16010204), Curlew Valley (HUC 16020309), American Falls (HUC 17040206), Blackfoot (HUC 17040207), Portneuf (HUC 17040208), and Salt (HUC 17040105) watersheds.

In addition, the PRO crew may look for a few more reference trend sites in the Blackfoot and Salt subbasins and the Bear River Basin.

**Twin Falls Regional Office (TFRO)** – For the 2008 Field Season, the TFRO BURP crew will be monitoring HUCs that are in the implementation phase of the TMDL process. Monitoring is being done on these HUCs in order of date when the TMDL for each was approved by the EPA. The TFRO crew will focus monitoring on streams in the Lake Walcott (HUC 17040209), Raft River (HUC 1704010), Goose Creek (HUC 17040211), and Wood River (HUC 17040219) watersheds.

The TFRO crew plans to work on the official designation of several new reference/trend sites within the region. This will include visiting these sites to determine the health of these waterbodies.

**Boise Regional Office (BRO)** – For 2008, the BRO BURP crew will focus on monitoring unassessed streams in the South Fork Boise (HUC 17050113), South Fork Payette (HUC 17050120), and South Fork Salmon (HUC 17060208) watersheds. In addition, the BRO will continue monitoring random sites and reference trend sites.

Where practicable, all sites will be electrofished and screened for bacteria.

**Lewiston Regional Office (LRO)** – For the 2008 field season, the LRO BURP crew will focus on monitoring streams in the Lower North Fork Clearwater (HUC 17060308) watershed as part of the 5-year TMDL review. The LRO will also monitor any unassessed streams in the area.

**Coeur d’Alene Regional Office (CRO)** – For the 2008 field season, the CRO BURP crew will focus on monitoring unassessed streams in the Lower Kootenai (HUC 17010104), Moyie (HUC 17010105), St Joe (HUC 17010304) and Hangman (HUC 17010306) watersheds. In addition, due to the possibility of sustained peak flows resulting from the above-average snowpack in the Panhandle Basin, the CRO crew plans to monitor in the Coeur d’Alene Lake watershed (HUC 17010303), a lower elevation watershed that was originally scheduled to be monitored in 2009. In addition, the CRO crew will continue monitoring random sites and reference trend sites.

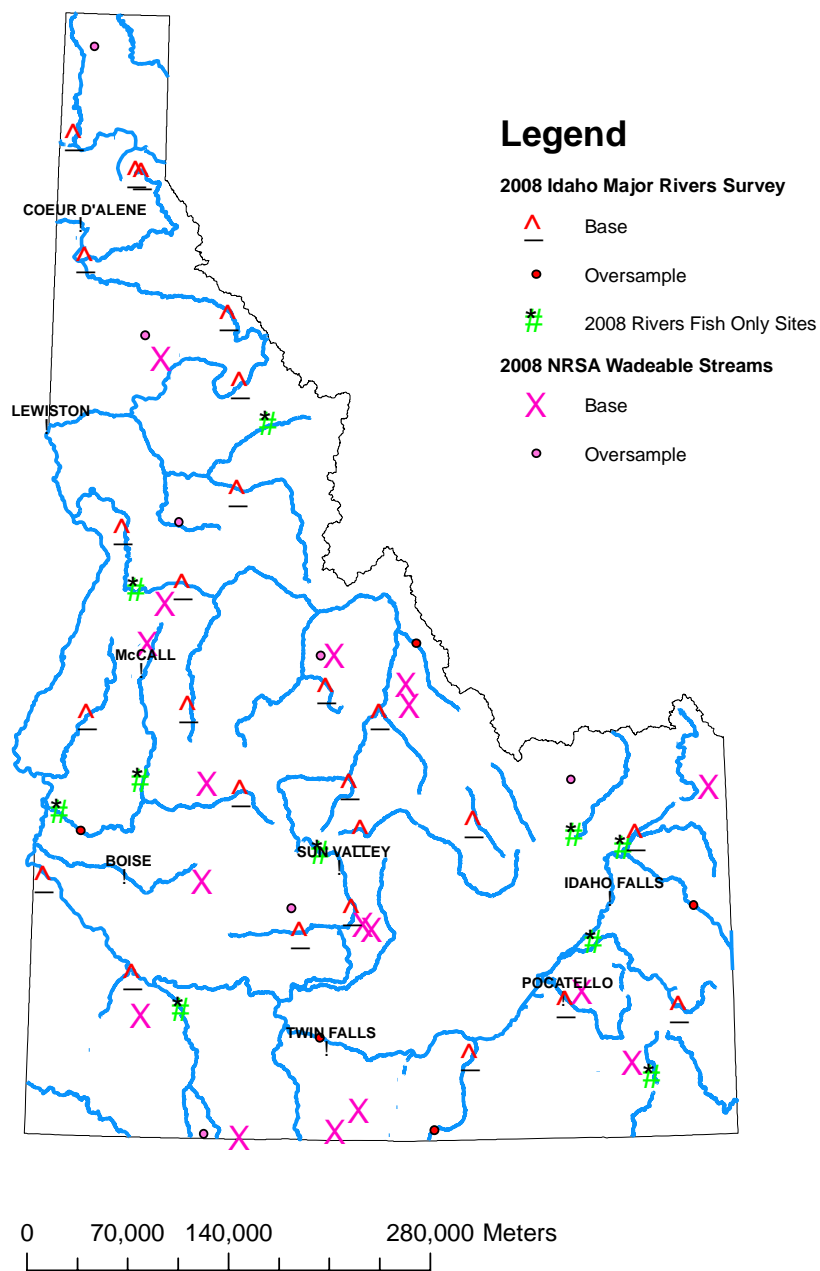
**State Office** – The State Office will field two crews during the 2008 field season conducting monitoring as part of the Idaho Major Rivers Survey and the National Rivers and Streams Assessment.

The Idaho Major Rivers Survey crew will be conducting river monitoring on 25 sites throughout Idaho. Data from these sites will be combined with data from 25 sites monitored in 2006 to develop a statewide assessment of the status of Idaho’s major rivers, including the level of mercury in fish tissue collected from Idaho’s major rivers. The survey design is a generalized random tessellation stratified (GRTS) survey design. Field methods for this project are detailed in the *Beneficial Use Reconnaissance Program Field Manual for Rivers* (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2006). In addition, the State Office crew will be revisiting 10 sites from the 2006 monitoring program to collect fish tissue for mercury analysis, for a total of 35 river sites (see Figure 4).

The National Rivers and Streams Assessment (NRSA) is a national effort by EPA, as described on their Web site:

“This survey will use a random sampling design to provide regional and national estimates of the condition of rivers and streams. States and tribes will use consistent sampling and analytical procedures to ensure that results can be compared across the country and over time. This survey will combine a first-ever assessment of the nation’s rivers with the second national survey of small wadeable streams”  
(<http://www.epa.gov/owow/riverssurvey/>).

The NRSA will provide chemical, biological, and habitat data from Idaho streams, and will allow DEQ to produce a statewide assessment of the ecological condition of Idaho’s flowing waters. For the 2008 field season, DEQ will focus on the wadeable portion of the NRSA (see Figure 4), with plans to complete the non-wadeable portion in 2009.



**Figure 4. Idaho river monitoring sites and wadeable stream sites for the NRSA.**

## **Pilot Projects**

A pilot project is a way to try new methods and other ideas out on a trial basis and thus save resources until it is shown that the method should be integrated into BURP.

For the 2008 field season, regional offices will monitor intermittent streams in an effort to aid in identifying proper metrics for assessment of these waters. Approximately two sites per region will be monitored, for a total of 12 intermittent streams.

## **Program Innovations/Improvements**

1.     **TELEforms**  
The Cardiff™ TELEform® system will be used for all BURP field forms. This is the fourth year with the TELEforms being in use. These forms allow for quick, easy, and accurate capture of data and subsequent conversion into digital format. The use of the TELEform® system has proven effective in reducing errors. This is an improvement in our quality assurance/quality control (QA/QC) process.
2.     **Centralized Training**  
This is the seventh year for the centralized training program. The program has been presented to the regional administrators as well as senior water quality staff and shown to be a top-level program that improved consistency and quality of the data gathered across the State for BURP. Centralized training is likely the most significant improvement in BURP QA/QC in recent years. In 2002 and 2003, field audits of the crews were very favorable and reflect the success of the centralized training. Centralized training will be conducted out of the Boise regional office in 2008 with Hawk Stone as the training coordinator.
3.     **Regionalized Field Keys**  
As an aid in fish field identification, Don Zaroban, DEQ's fish taxonomist, developed a set of field keys for the BURP crews to use in 2003. These field keys were popular with the crews and the coordinators and will be used again in 2008. A general key was developed to help in the identification of commonly encountered fish families in Idaho. Then separate keys were done to cover the major parts of Idaho: Snake River drainages below Shoshone Falls, Snake River drainages above Shoshone Falls, and the panhandle. An addition for the 2006 field season was the invasive species identification pages added by Mark Shumar, DEQ's Invasive Species Coordinator. These list the top 10 invasive species (both aquatic plant and animal) that pose a major threat to the State. The crews will be on watch for evidence of these species and should any be encountered, the crew must make a note of the location and send a sample to Mark Shumar.

## Quality Assurance/Quality Control

The Quality Assurance program for BURP is critical to its success and is directly related to the utility, reproducibility, and defensibility of the data obtained by DEQ's monitoring efforts. Quality control is part of every aspect of BURP, including:

- Preparing monitoring documents
- Educating and training BURP coordinators and crews (Beneficial Use Reconnaissance Program Technical Advisory Committee, 2002)
- Electrofishing training
- Crew training, which is now centralized for consistency
- Preparing, calibrating, and maintaining field equipment
- Taking samples
- Conducting independent field audits, writing subsequent reports, and following up on issues raised in the audits
- Identifying biological specimens (macroinvertebrate, fish, algae, amphibian)
- Housing voucher specimens in a museum collection; checking individual field sheets for accuracy and legibility
- Entering, analyzing, and managing data
- Writing reports and all other aspects of using the data

## Safety Considerations

DEQ considers crew safety the priority for all BURP monitoring. Major safety aspects of the monitoring are discussed in the *BURP Field Manual for Streams*. Some of the safety precautions are listed below.

- DEQ requires that all staff and crew members dealing with BURP have current certifications in first aid and CPR or receive training in both.
- DEQ requires that vehicles be stocked with emergency items, including a first aid kit, fire extinguisher, and other safety items.
- Safety issues concerning working around water and using sampling equipment are discussed in the BURP Field Manual, the BURP Training Manual (Beneficial Use Reconnaissance Program Technical Advisory Committee 2006), and in training classes.
- Each BURP crew is responsible for their own safety. DEQ will provide the tools and training necessary for crews to conduct their field work in a safe manner.
- The crews will also take appropriate measures to decontaminate waders, equipment, and vehicles so as not to transfer/introduce weed seeds, aquatic diseases, or other aquatic organisms from one water or watershed to another.

In addition to the items above, each regional office addresses topics that are specific to its region.

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## **List of Acronyms and Abbreviations**

AU	Assessment Unit
BRO	Boise Regional Office
BURP	Beneficial Use Reconnaissance Program
CALM	Consolidated Assessment and Listing Methodology
CRO	Coeur d'Alene
CFR	Code of Federal Register
CWA	Clean Water Act (federal)
DEQ	Department of Environmental Quality, State of Idaho
EMAP	Environmental Monitoring and Assessment Program
EPA	Environmental Protection Agency
HUC	Hydrologic Unit Codes
IFRO	Idaho Falls Regional Office
LRO	Lewiston Regional Office
PRO	Pocatello Regional Office
QA/QC	Quality Assurance/Quality Control
REMAP	Regional Environmental Monitoring and Assessment Program
RBP	Rapid Bioassessment Protocols
SWIM	Surface Water Monitoring Strategy
TAC	Technical Advisory Committee
TFRO	Twin Falls Regional Office
WBAG	Waterbody Assessment Guidance
WBID	Waterbody Identification Number